

WHAT IS CLAIMED IS:

1. A method of detecting Alzheimer's pathogenesis, comprising:
detecting a disruption in normal cellular distribution of a
G-protein receptor kinase (GRK).
2. The method of Claim 1, wherein:
the disruption occurs in a prodromal stage of
Alzheimer's disease.
3. The method of Claim 1, wherein:
the disruption occurs in sub-cellular distribution of a
GRK.
4. The method of Claim 3, wherein:
the GRK comprises GRK2 or GRK 5.
5. The method of Claim 3, wherein:
the disruption comprises reduction in membrane-
associated GRK.
6. The method of Claim 1, wherein:
the disruption comprises increase in cytosolic GRK.

7. The method of Claim 1, wherein:
the disruption is caused by a peptide.
8. The method of Claim 7, wherein:
the peptide comprises β -amyloid.
9. The method of Claim 7, wherein:
the peptide comprises soluble β -amyloid.
10. The method of Claim 9, wherein:
the concentration of soluble β -amyloid is in a nM range.
11. The method of Claim 9, wherein:
the concentration of soluble β -amyloid is in a range of about 50 nM - 500 nM.
12. The method of Claim 1, wherein:
the detection step is carried out in brain cells.
13. The method of Claim 12, wherein:
the brain cells comprise microglial cells.

14. A method of detecting Alzheimer's pathogenesis, comprising:
detecting abnormal cellular accumulation of β -amyloid
in a subject suspect of having Alzheimer's disease.
15. The method of Claim 14, wherein:
the abnormal accumulation is in a range of about 50
nM - 500 nM.
16. The method of Claim 15, wherein:
the β -amyloid comprises soluble β -amyloid.
17. The method of Claim 14, wherein:
the detection step is carried out in brain cells.
18. The method of Claim 17, wherein:
the brain cells comprise microglial cells.
19. A method of inhibiting GRK-GPCR interaction in a cell,
comprising:
pretreating a cell with a peptide.

20. The method of Claim 19, wherein:
the peptide comprises β -amyloid.
21. The method of Claim 19, wherein:
the peptide comprises soluble β -amyloid.
22. The method of Claim 21, wherein:
the cell comprises a brain cell.
23. The method of Claim 22, wherein:
the brain cell comprises a microglial cell.
24. A method of inhibiting desensitization of GPCR in a cell,
comprising:
pretreating a cell with a peptide.
25. The method of Claim 23, wherein:
the peptide comprises β -amyloid.
26. The method of Claim 23, wherein:
the peptide comprises soluble β -amyloid.

27. The method of Claim 26, wherein:
the cell comprises a brain cell.
28. The method of Claim 27, wherein:
the brain cell comprises a microglial cell.
29. A method of preventing or suppressing Alzheimer's disease progression at prodromal or early stages, comprising:
correcting GRK dysfunction in cells.
30. The method of Claim 29, wherein:
the GRK dysfunction is induced by β -amyloid.
31. The method of Claim 30, wherein:
the β -amyloid comprises soluble β -amyloid.
32. A method of correcting soluble β -amyloid induced GRK dysfunction in cells, comprising:
administering to a subject in need thereof a suitable amount of soluble β -amyloid antagonist.
33. A vaccine comprising a β -amyloid analog for use as prophylaxis against β -amyloid induced reactions in a subject.